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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,547	07/10/2003	John Michael Adolphson	ROC920030028US1	2812

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EXAMINER	
KENDALL, CHUCK O	

ART UNIT	PAPER NUMBER
2192	

DATE MAILED: 11/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/616,547	ADOLPHSON ET AL.	
	Examiner	Art Unit	
	Chuck O. Kendall	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08/18/06*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

1. This is in response to Application filed on 08/18/06.

2. Claims 1 – 19 have been amended.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 – 5, 7,8,13 – 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith USPN 6,311,324 in view of Chambers et al. US 6,427,234.

Regarding claim 1, Smith discloses a method for compiling computer programming code, comprising the steps of:

generating a compilable source module, said source module containing a plurality of discrete component portions (3:17 – 22, see critical areas or hot spots);

generating selective optimization data, said selective optimization data including a plurality of selective optimization data portions, each of said plurality of selective

optimization data portions corresponding to a respective component portion of said plurality of discrete component portions (See FIG. 4, 410 and 412 and all associated text); and

(a) with respect to each of said plurality of discrete component portions, selectively determining whether to optimize the respective discrete component portion using said selective optimization data portion corresponding to the respective discrete component portion (See, FIG. 4, steps 412 and 414, make determination of whether or not are performed). Although, Smith doesn't expressly disclose an automated compiler, wherein said compiling step comprises the steps of performing at least one optimization upon the respective discrete component portion responsive to said selectively determining step and, compiling the respective discrete component portion without performing at least one optimization which said automated compiler has the capability to automatically perform on the respective discrete component portion, Smith does disclose a CTA advisor which automatically performs the same steps (FIG.4, 400 – 430, and all associated text). However, Chambers in an analogous art and similar configuration does includes a dynamic compiler which automatically optimizes selective code segments (7:25 – 45). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Smith and Chambers because, it would give advice based on optimizations not possible in traditional compilers due to general assumptions forced by the programming language (Chambers, 2:43 – 46).

Regarding claim 2, the method for compiling computer programming code of claim 1, wherein said component portion is a procedure (FIG. 3, see 312 for application modules and critical regions, same as procedure).

Regarding claim 3, the method for compiling computer programming code of claim 1, wherein said selective optimization data comprises data concerning debug activity occurring with respect to each of said plurality of discrete component portions (4:20 – 30, for debug activity see detect range of numbers to give advice and examining control flow structure).

Regarding claim 4, the method for compiling computer programming code of claim 1, wherein said selective optimization data comprises data concerning execution time with respect to each of said plurality of discrete component portions (2:15 – 20, see analyzes and suggests improvements for execution time).

Regarding claim 5, the method for compiling computer programming code of claim 1, wherein said selective optimization data comprises a plurality of optimization flags, each optimization flag corresponding to a respective component portion of said plurality of discrete component portions (3:18 – 21, see hot spots are *identified*).

Regarding claim 7, the method for compiling computer programming code of claim 1, wherein: said step

(a) comprises, with respect to each of said plurality of discrete component portions (Smith, 3:17 – 22, see critical areas or hot spots); determining a corresponding optimization level from among at least three distinct optimization levels, wherein the optimization performed at a first level are greater than the optimizations performed at a second level, and the optimizations performed at a second level are greater than the optimizations, if any, performed at a third level (5:65 – 6:5, shows different optimization strategies and transformations/levels being utilized); and said step

(b) comprises performing optimization on each respective discrete component portion according to its corresponding optimization level (5:50 – 65, shows the different transformations from 1 – 12).

Regarding claim 8, Smith anticipates a method for compiling computer programming code, comprising the steps of:

generating a compilable source module (3:17 – 22, see critical areas or hot spots);

generating debug activity data with respect to said compilable source module (4:20 – 30, for debug activity see detect range of numbers to give advice and examining control flow structure); and

compiling said compilable source module with an automated compiler, wherein said compiling step comprises:

(a) making a plurality of selective optimization determinations with respect to said compilable source module using said debug activity data (See, FIG. 4, steps 412 and 414, make determination of whether or not are performed); and

(b) performing at least one respective optimization step responsive to each said selective optimization determination (See, FIG. 4, steps 412 and 414, make determination of whether or not are performed).

Regarding claim 13, Smith anticipates a computer program product for compiling computer programming code, comprising:

a plurality of executable instructions recorded on signal-bearing media, wherein said instructions, when executed by at least one processor of a digital computing device, cause the device to perform the steps of:

receiving a compilable source module, said source module containing a plurality of discrete component portions (3:17 – 22, see critical areas or hot spots);

receiving selective optimization data, said selective optimization data including a plurality of selective optimization data portions, each of said plurality of selective optimization data portions corresponding to a respective component portion of said plurality of discrete component portions (See FIG. 4, 410 and 412 and all associated text); and

compiling said compilable source module, wherein said compiling step comprises:

(a) with respect to each of said plurality of discrete component portions, selectively determining whether to optimize the respective discrete component portion using said selective optimization data portion corresponding to the respective discrete component portion (See, FIG. 4, steps 412 and 414, make determination of whether or not are performed); and

(b) performing at least one optimization upon the respective discrete component portion responsive to said selectively determining step (See, FIG. 4, steps 412 and 414, make determination of whether or not are performed).

Although, Smith doesn't expressly disclose an automated compiler, wherein said compiling step comprises the steps of performing at least one optimization upon the respective discrete component portion responsive to said selectively determining step and, compiling the respective discrete component portion without performing at least one optimization which said automated compiler has the capability to automatically perform on the respective discrete component portion, Smith does disclose a CTA advisor which automatically performs the same steps (FIG.4, 400 – 430, and all associated text). However, Chambers in an analogous art and similar configuration does includes a dynamic compiler which automatically optimizes selective code segments (7:25 – 45). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Smith and Chambers because, it would give advice based on optimizations not possible in traditional compilers due to general assumptions forced by the programming language (Chambers, 2:43 – 46).

Regarding claim 14, the computer program product for compiling computer programming code of claim 13, wherein said component portion is a procedure (FIG. 3, see 312 for application modules and critical regions, same as procedure).

Regarding claim 15, the computer program product for compiling computer programming code of claim 13, wherein said selective optimization data comprises data concerning debug activity occurring with respect to each of said plurality of discrete component portions (4:20 – 30, for debug activity see detect range of numbers to give advice and examining control flow structure).

Regarding claim 16, the computer program product for compiling computer programming code of claim 13, wherein said selective optimization data comprises data concerning execution time with respect to each of said plurality of discrete component portions (2:15 – 20, see analyzes and suggests improvements for execution time).

Regarding claim 17, the computer program product for compiling computer programming code of claim 13, wherein said selective optimization data comprises a plurality of optimization flags, each optimization flag corresponding to a respective component portion of said plurality of discrete component portions (3:18 – 21, see hot spots are *identified*).

Regarding claim 19, the computer program product version of claim 7, see rationale above as previously discussed.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 6, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith USPN 6,311,324 in view of Chambers et al. US 6,427,234 as applied in claims 1 and 13 in view of Blume USPN 6,223,337 B1.

Regarding claims 6 and 18, Smith as modified discloses all the claimed limitations as applied in claims 1 and 13 above. Smith and Chambers also discloses wherein said compiling step comprises, with respect to a first discrete component portion, but not with respect to all said discrete component portions (smith, FIG. 4, 402, shows only selected portion). The combination of Smith and Chambers doesn't expressly disclose generating alternative compiled versions of the first discrete component portion, wherein a first alternative version of said first discrete component

portion is produced by performing a first optimization, and a second alternative version of said first discrete component portion is produced without performing said first optimization. However, Blume in an analogous art of compiling segments (discrete component portion) of source code (3:1 – 10) discloses producing a first executable code using optimization and producing a second executable code without optimization and results are compared (3:1 –10). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Smith, Chambers and Blume because, it would enable reporting errors if the first and second results differ (Blume, 3:10).

7. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith USPN 6,311,324 in view of Chambers et al. US 6,427,234 as applied in claim 8 in view of Hunt USPN 6,499,137 B1.

Regarding claim 9, Smith as modified discloses all the claimed limitations as applied in claim 8 above. Although, Smith and Chambers doesn't expressly disclose wherein said debug activity data comprises a plurality of counters, each counter being incremented upon the occurrence of a corresponding debug event, Smith does disclose performance analyzing which uses range of line numbers and execution tracing (4:13 – 20).

However, Hunt in an analogous art and similar configuration of compiling (4:60 – 65), discloses changing program counters and utilizing break points to identify injected

code which triggers a debugging break point (45:25 – 35). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Smith, Chambers and Hunt because, changing the program counter on the application program thread to point to the code would enable it to resume execution (Hunt, 4:25 – 35).

Regarding claim 11, Hunt further discloses the method for compiling computer programming code of claim 9, wherein said debug activity data comprises a plurality of break-point counters, each break-point counter corresponding to a respective portion of said compilable source module, each break-point counter being incremented upon the occurrence of a break point triggered within the corresponding respective portion of said compilable source module (45:25 – 35, see breakpoint and program counter).

8. Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith USPN 6,311,324 in view of Chambers et al. US 6,427,234 as applied in claim 9 in view of Hunt USPN 6,499,137 B1 and further in view of Bates et al. USPN 6,311,324.

Regarding claim 10, Smith as modified by Chambers and Hunt discloses all the claimed limitations as applied in claim 9 above. The combination of Smith,Chambers and Hunt doesn't expressly disclose, wherein each counter is incremented upon the occurrence of a corresponding debug event by an amount derived from a user

weighting factor associated with a user on whose behalf the debug event occurs. However, Bates in an analogous art and similar configuration discloses conditional breakpoints and incrementing counter for breakpoints (FIG. 5B. 506 and 512, also see 5:13 – 17, for user set control points). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Smith, Chambers and Hunt with Bates because, it would enable the user to set control points, display and change variables (Bates, 5:13 - 18).

Regarding claim 12, Smith as modified by Chambers, and Hunt discloses all the claimed limitations as applied in claim 9 above. The combination of Smith, Chambers and Hunt doesn't expressly disclose, wherein said debug activity data comprises a plurality of variable visualization counters, each variable visualization counter corresponding to a respective variable used in said compilable source module, each variable visualization counter being incremented upon the occurrence of a user directed visualization of the corresponding variable during debug activity. However, Bates in an analogous art discloses using a user interface to display values of the first and second counters at which the conditional breakpoint is set (9:35 – 40). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Smith, Chambers and Hunt with Bates because, it would enable the user to set control points, display and change variables (Bates, 5:13 - 18).

Response to Arguments

9. Applicant's arguments with respect to claims 1- 19 have been considered but are moot in view of the new ground(s) of rejection.

Correspondence information

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuck Kendall whose telephone number is 571-272-3698. The examiner can normally be reached on 10:00 am - 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam can be reached on 571-272-3695. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ck.

TUAN DAM
SUPERVISORY PATENT EXAMINER